CERTIFIED MAIL 7017 3040 0000 7907 0025

October 25, 2018

Air and Radiation Division
U. S. Environmental Protection Agency, Region V
77 West Jackson Boulevard,
Chicago, IL 60604

Re: Submittal of U. S. Steel – Minntac and Keetac Compliance Reports per the Requirements of 40 CFR Part 52.1235(e)(5) through (7) – Taconite Regional Haze FIP

U. S. Steel – Keetac (Keetac)

Keetac utilizes Ametek Model 920 analyzers to measure NOx and SO_2 (Serial Number AE-920-10086-1).

Keetac submits quarterly excess emission reports to the Minnesota Pollution Control Agency. Therefore, to fulfill the requirements of the excess emissions and monitoring system performance reports, a copy of the quarterly excess emissions report for the 3rd quarter is included in this submittal. Where EPA's requirements per the regulation differ from Minnesota's requirements, this information is also being included.

Any periods of startup and shut down are reported in Section 5 of the DRF-1 Form included in this submittal. There were no deviations during this reporting period.

The emission limitation for SO2 (the only pollutant currently in effect) is 225 lbs/hr – 30 day rolling average. There were no deviations associated with the emission limit.

The last CEMS CGA was conducted on September 12, 2018 and is included in this quarter's report. The last CEMS RATA was conducted on March 20, 2018 and the report has been previously submitted.

U. S. Steel – Minntac (Minntac)

Minntac utilizes Ametek Model 920 analyzers to measure NOx and SO_2. The table below outlines the serial numbers for each of the units:

Line 3	AE-920-10086-1
Line 4	AE-920-10086-2
Line 5	AE-920-10086-3
Line 6	ZA-920-10336-1
Line 7	ZA-920-10336-2

Minntac submits quarterly excess emission reports to the Minnesota Pollution Control Agency. Therefore, to fulfill the requirements of the excess emissions and monitoring system performance reports, a copy of the quarterly excess emissions report for the 3rd quarter is included in this submittal. Where EPA's requirements per the regulation differ from Minnesota's requirements, this information is also being included.

Any periods of startup and shut down are reported in Section 5 of the DRF-1 Form included in this submittal. There were no deviations during this reporting period.

The emission limitation for SO_2 is a 30-day rolling average aggregate limit for indurating lines 3-7 of 498 lbs/hr when all lines are producing flux pellets, 630 lbs/hr when producing acid pellets or using the equation in 40 CFR 52.1235(b)(2)(iii) when the 30 day period includes both acid and flux pellet production. There were no deviations associated with the emission limit.

The emission limitation for NOx on Line 6 and Line 7 is 1.5 lbs/MMBtu based on a 30-day rolling average. However, for any 30 or more consecutive days when only natural gas is used, a limit of 1.2 lbs/MMBtu applies. There were no deviations associated with the emission limit for Line 6 and Line 7.

The latest CEMS RATA was conducted on Lines 3-7 on May 16-17 and May 21-23, 2018. This report has been submitted previously. The last CGAs were performed on August 16-17, 2018 and the results are reported in this quarter's report.

If you should require any additional information, please contact me at scampbell@uss.com or 218-778-8684.

Sincerely,

Stephani Campbell

Stephani Campbell
Environmental Control

U. S. Steel Corporation
Minnesota Ore Operations
P.O. Box 217
Keewatin, MN 55753

CERTIFIED MAIL 7017 3040 0000 7907 0018

October 25, 2018

Air Quality Compliance Tracking Coordinator
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Re: U. S. Steel – Keetac Administrative Order by Consent
Quarterly Continuous Monitoring System Deviation Report

Dear Supervisor:

Enclosed with this letter is U. S. Steel – Keetac's (Keetac) Quarterly Continuous Emission Monitoring System Deviation report for the 3rd quarter of 2018. The Continuous Emission Monitoring System (CEMS) was certified on Keetac's Waste Gas Stack on November 6th, 2008. The CEMS was installed as a part of Keetac's Administrative Order by Consent with the State of Minnesota effective September 27th, 2007.

Deviations associated with Emission Limits

There were no deviations associated with emission limits.

Deviations associated with Monitor Downtime

There were nine instances of monitor downtime that affected either NO_x or SO_2. The individual downtime duration and cause is listed in the monitor downtime section of this report.

Deviations associated with Monitor Bypass

Keetac utilizes a grate/kiln system for pelletizing taconite. Although this is an extremely hot process (with temperatures exceed 2500 °F in the kiln), the equipment is designed to withstand the high temperatures and will do so during normal operation. However, the grate is very susceptible to heat damage during upset conditions or if stopped for any reason while it is hot. To prevent equipment damage and heat related safety issues during these situations, large amounts of heat must be released from the grate as soon as possible. For that reason the system was designed

such that when the grate stops or gets overheated, a stack cap is lifted to release heat through an emergency stack. At this time the monitor is bypassed. These situations are the only times the monitor is bypassed. Because they represent upset conditions or process downtime (production loss), the company has a strong vested interest in minimizing both the number and duration of occurrences.

The times listed in the monitor bypass section are when the grate emergency stack cap is open and there is combustion in the kiln. This is the only time when any NO_x and SO_2 are emitted. Times when the cap is open but there is no combustion in the kiln are not listed.

If you have any questions concerning these forms, please contact Stephani Campbell at (218) 778-8684.

Sincerely,

Lawrence Sutherland
General Manager
U. S. Steel - Minnesota Ore Operations

Enclosure

cc: Steve Palzkill – MPCA
File

Minnesota Pollution Control Agency

AIR QUALITY REPORTING FORM

Checklist For Routine Submittals
-Typical Annual, Semiannual and Quarterly Submittals for Air Quality Permits

Minnesota Pollution Control Agency
520 Lafayette Road, St. Paul, MN 55155-4194 (651) 296-6300

Form AQRF
8/01/05

Facility Name: U. S. STEEL - KEETAC

Facility ID #: 13700063 **County Facility is located in:** ITASCA

Facility Address: 1 MINE ROAD
KEEWATIN, MN **Zip Code:** 55753

Mailing Address: P.O.BOX 217
KEEWATIN, MN **Zip Code:** 55753

Facility Contact Person (Print Name): Stephani Campbell
Facility Contact Person's Title: Environmental Control Engineer
Contact Person's Phone # (Include Area Code): (218) 778-8684

THE FOLLOWING REPORTS ARE INCLUDED IN THIS SUBMITTAL (CHECK ALL THAT APPLY):

ANNUAL REPORTS

- ☐ Compliance Certification Report (CR-04)
- ☐ NESHAP Submittal
- ☐ Waste Combustor Report for Class IV Waste Combustors
- ☐ Equipment List
- ☐ Relative Accuracy Test Audit (RATA) Results Summary (CEMS) Date(s) Completed: _____

SEMIANNUAL REPORTS

- ☐ NESHAP Submittal
- ☐ Deviations Report (DRF-1 or DRF-2)

Year: _____

☐ 1st Half ☐ 2nd Half

- ☐ Calibration Error Audit Results Summary (COMS) Date(s) Completed: _____
- ☒ Cylinder Gas Audit (CGA) Summary (CEMS) Date(s) Completed: 9/12/18

QUARTERLY REPORTS

- ☐ Waste Combustor Quarterly Report (Class I, II, III, A, C, or D Waste Combustors)
- ☐ NESHAP Quarterly Submittal
- ☐ Direct Heating Units Combusting Solid Waste Report
- ☒ Excess Emissions Report (EER) (CEMS or COMS) (DRF-1 or DRF-2)

Year: 2018

☐ 1st Quarter ☐ 2nd Quarter ☒ 3rd Quarter ☐ 4th Quarter

- ☐ Indirect Heating Units Combusting Solid Waste Report
- ☐ Linearity Check Results Summary (CEMS) Date(s) Completed: _____

OTHER REPORTS

☐ Please Specify: _____ Date(s) Completed (if applicable) _____

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Excess Emissions Reporting Form - DRF-1

Continuous Monitoring Systems Reporting Form

Please note: This form has been updated. Please print, complete and remit only the forms. Please see the instructions in the Word version of DRF-1 to ensure proper use and understanding of definitions. DO NOT print and return the instructions.

Use this form to record and report excess emissions (EE) that are identified by *Continuous Monitoring Systems.* This includes Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems (COMS). DRF-1 is the form you must use to report excess emissions from a stack as recorded by your facility's Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems (COMS).

Address hard copy

Compliance Tracking Coordinator, Fourth Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

1) General Facility Information

Company name: U. S. Steel - Keetac

AQ file no.: 62B

AQ permit no.: 13700063-005

Report covers Quarter: Second

Year: 2018

2) CEMS/COMS Data Summary Table

				Duration of Monitor Downtime			Duration of Excess Emissions (EE)		
2a) Monitor ID Number	2b) Monitor ID Pollutant	2c) EU/SV ID Number	2d) Total Operating Time (TOT) (hr)	3i) Total Duration of Monitor Downtime (hr)	2e) Downtime % Of TOT	4l) Cumulative Duration of Exempt EE	2f) Exempt EE % of TOT	4m) Cumulative Total Duration of All EE	2g) Total EE % of TOT
Line 2	NOx	SV 051	2208	19	0.9%	N/A	N/A	0	0.00%
Line 2	SO2	SV 051	2208	13	0.6%	N/A	N/A	0	0.00%

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3a) Monitor ID Number	3b) Monitor ID Pollutant or Parameter	3c) Emission Unit Being Monitored	3d) Beginning Date and Time of Downtime	3e) End Date and Time of Downtime	3f) Duration of Downtime (min)	3g) Reason for Monitor Downtime (clarifying comments)	3h) Corrective ActionTaken (clarifying comments)
Line 2	SO2	SV 051	08/08/2018 12:00:00	08/08/2018 17:59:00	360	Preventative Maintenance	Performed necessary maintenance
Line 2	SO2	SV 051	08/09/2018 09:00:00	08/09/2018 14:59:00	360	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 2	SO2	SV 051	08/27/2018 13:00:00	08/27/2018 13:59:00	60	Preventative Maintenance	Performed necessary maintenance
Line 2	NOx	SV 051	08/08/2018 12:00:00	08/08/2018 17:59:00	360	Preventative Maintenance	Performed necessary maintenance
Line 2	NOx	SV 051	08/09/2018 07:00:00	08/09/2018 07:59:00	60	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 2	NOx	SV 051	08/09/2018 08:00:00	08/09/2018 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	NOx	SV 051	08/09/2018 09:00:00	08/09/2018 14:59:00	360	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 2	NOx	SV 051	09/25/2018 05:00:00	09/25/2018 08:59:00	240	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 2	NOx	SV 051	09/25/2018 09:00:00	09/25/2018 09:59:00	60	Automatic Calibration	Performed necessary maintenance

3i) Total duration of downtime: 32 **hours**

*Opacity time listed in minutes

4) Duration of Excess Emissions: Provide the following information regarding each individual excess emission

4a) Emission Unit ID Number	4b) Monitor ID Number	4c) Pollutant or Parameter Monitored	4d) Beginning Date and Time of EE	4e) End Date and Time of EE	4f) Limit and Averaging Period	4g) Highest Reading of EE with Units (example: 5 lb/hr, etc)	4h) Duration of Exempt EE (include these entries as part of 4i)	4i) Total Duration of All EE	4j) Cause of EE (clarifying comments)	4k) Corrective Action Taken (clarifying comments)
SV051	**CM001**	**NOx**	**N/A**	**N/A**	**N/A**	**N/A**	**0**	**0**	**N/A**	**N/A**
SV051	**CM005**	**SO2**	**N/A**	**N/A**	**N/A**	**N/A**	**0**	**0**	**N/A**	**N/A**

4l) Cumulative Duration of Exempt Excess Emissions: **0**

4m) Cumulative Total Duration **0 Hrs**

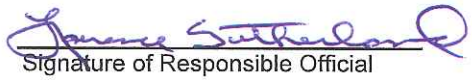
5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (min)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass (min)	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 2	SV 051	NOx and SO2	7/20/2018 0:46	7/20/2018 0:54	8	Yes	8	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	7/20/2018 1:58	7/20/2018 2:16	18	Yes	18	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	7/20/2018 2:16	7/20/2018 2:18	2	Yes	2	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	7/20/2018 3:00	7/20/2018 3:18	18	Yes	18	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	8/3/2018 10:20	8/3/2018 10:31	11	Yes	11	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	8/9/2018 10:46	8/9/2018 10:54	8	Yes	8	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	8/9/2018 10:55	8/9/2018 10:56	1	Yes	1	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	8/12/2018 2:01	8/12/2018 2:13	12	Yes	12	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	8/12/2018 2:14	8/12/2018 2:15	2	Yes	2	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/5/2018 4:19	9/5/2018 4:31	12	Yes	12	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/5/2018 5:22	9/5/2018 9:22	240	Yes	240	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/5/2018 11:14	9/5/2018 12:33	79	Yes	79	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/5/2018 15:20	9/5/2018 20:12	291	Yes	291	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/5/2018 20:12	9/5/2018 20:13	1	Yes	1	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/6/2018 11:58	9/6/2018 13:00	62	Yes	62	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/6/2018 13:00	9/6/2018 16:29	209	Yes	209	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/6/2018 16:29	9/6/2018 16:31	3	Yes	3	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/11/2018 20:58	9/11/2018 21:00	2	Yes	2	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/11/2018 21:00	9/11/2018 23:16	136	Yes	136	Bypass necessary to protect plant equipment	N/A

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (min)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass (min)	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 2	SV 051	NOx and SO2	9/12/2018 13:42	9/12/2018 14:04	22	Yes	22	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/13/2018 9:29	9/13/2018 13:00	211	Yes	211	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/13/2018 13:01	9/13/2018 13:05	4	Yes	4	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/16/2018 1:38	9/16/2018 1:52	14	Yes	14	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/16/2018 16:06	9/16/2018 16:09	2	Yes	2	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/16/2018 19:09	9/16/2018 19:14	5	Yes	5	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/19/2018 8:02	9/19/2018 8:18	16	Yes	16	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/19/2018 8:25	9/19/2018 8:32	8	Yes	8	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	9/19/2018 8:41	9/19/2018 8:45	4	Yes	4	Bypass necessary to protect plant equipment	N/A
			5k) Total duration of allowable monitor bypass:				**23**	**hours**	

6) CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.



Signature of Responsible Official

Lawrence Sutherland
Printed Name of Responsible Official

General Manager- Minnesota Ore
Title

October 25, 2018
Date

COMS audits

Subject item	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
N/A								

Cylinder gas audit's (CGA)

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
SV051/EU030	2208	CM001	NOx	9/12/2018	Low 1.0% Mid 0.4%	Pass	12/31/2018	
SV051/EU030	2208	CM005	SO2	9/12/2018	Low -1.4% Mid -1.2%	Pass	12/31/2018	

Linearity

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
N/A					Low Mid High			

Relative accuracy test audit (RATA)

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Relative accuracy	Pass/fail	Next test due by:	Comments
SV051		CM001	NOx	3/20/2018	1.5%	Pass	3/31/2019	
SV051		CM005	SO2	3/20/2018	16.4%	Pass	3/31/2019	

CGA Test Report - 2018Q3

Facility Name: US Steel Location: Keetac

WGS SO2 Audit Test Results Analyzer Span: 250.0 ppm

Mfr & Model: ametek 920 so2 Serial Number: AE-920-10086-1

Low-Level Calibration Gas (20-30% of Span) (50.0 ppm - 75.0 ppm)	Concentration: 62.6 Cylinder No.: CC168937 Expiration Date: 11/08/20
Mid-Level Calibration Gas (50-60% of Span) (125.0 ppm - 150.0 ppm)	Concentration: 141.4 Cylinder No.: SG9169308 Expiration Date: 10/22/20

Test Date: 09/12/18 Tester: Nick Wilson

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	11:23:00	61.0	11:26:00	139.0
Run 2	11:35:00	62.0	11:38:00	140.0
Run 3	11:47:00	62.0	11:50:00	140.0
Avg. Monitor Response		61.7		139.7
Calibration Error		-1.4		-1.2
Absolute Difference		0.9		1.7
Test Status		Pass		Pass

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response - Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Summary Table by Monitor Downtime Type
U. S. Steel - Keetac
3rd Quarter 2018

NOx

Line	Duration (Hrs)	Description
Line 2	2	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	11	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction
	6	Preventative Maintenance

SO2

Line	Duration (Hrs)	Description
Line 2	0	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	6	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction
	7	Preventative Maintenance

CERTIFIED MAIL 7015 0640 0007 1325 8852

October 25, 2018

Air Quality Compliance Tracking Coordinator
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Re: United States Steel Corporation, Minnesota Ore Operations – Minntac
Air Emissions Permit No. 13700005-006
Quarterly Continuous Monitoring System Deviation Report

Dear Supervisor:

Enclosed with this letter is U. S. Steel – Minntac's (Minntac) Quarterly Excess Emissions Reporting Form for the 3rd quarter of 2018. NOx/SO_2 Continuous Emission Monitoring Systems (CEMS) are certified on all Agglomerator Waste Gas Lines.

Deviations associated with Emission Limits

There were no deviations during the 3rd quarter of 2018.

Deviations associated with Monitor Downtime

There were 48 instances of monitor downtime for either NOx or SO_2. The individual downtime durations and causes are listed in the monitor downtime section of this report.

Deviations associated with Monitor Bypass

Minntac utilizes a grate/kiln system for pelletizing taconite. Although this is an extremely hot process (with temperatures exceed 2500°F in the kiln), the equipment is designed to withstand the high temperatures and will do so during normal operation. However, the grate is very susceptible to heat damage during upset conditions or if stopped for any reason while it is hot. To prevent equipment damage and heat related safety issues during these situations, large amounts of heat must be released from the grate as soon as possible. For that reason the system was designed such that when the grate stops or gets overheated, a stack cap is lifted to release heat through an emergency stack. At this time the monitor is bypassed. These situations are the only times the monitor is bypassed. Because they represent upset conditions or process downtime (production loss), the company has a strong vested interest in minimizing both the number and duration of occurrences.

The times listed in the monitor bypass section are when the grate emergency stack cap is open and there is combustion in the kiln. This is the only time when any NO_x or SO_2 is emitted. Times when the cap is open but there is no combustion in the kiln are not listed.

If you have any questions concerning these forms, please contact Stephani Campbell at (218) 778-8684.

Sincerely,

Lawrence Sutherland
General Manager – Minnesota Ore Operations

Enclosure

cc: Steve Palzkill – MPCA
File

Minnesota Pollution Control Agency

AIR QUALITY REPORTING FORM

Checklist For Routine Submittals

-Typical Annual, Semiannual and Quarterly Submittals for Air Quality Permits

Minnesota Pollution Control Agency
520 Lafayette Road, St. Paul, MN 55155-4194 (651) 296-6300

Form AQRF

8/01/05

Facility Name: United States Steel Corporation, Minnesota Ore Operations - Minntac

Facility ID #: 13700005 **County Facility is located in:** ST. LOUIS

Facility Address: COUNTY RD. 102

MOUNTAIN IRON, MN **Zip Code:** 55768

Mailing Address: P.O.BOX 417

MOUNTAIN IRON, MN **Zip Code:** 55768

Facility Contact Person (Print Name): Stephani Campbell

Facility Contact Person's Title: Environmental Control

Contact Person's Phone # (Include Area Code): (218) 778-8684

THE FOLLOWING REPORTS ARE INCLUDED IN THIS SUBMITTAL (CHECK ALL THAT APPLY):

ANNUAL REPORTS

- ☐ Compliance Certification Report (CR-04)
- ☐ NESHAP Submittal
- ☐ Waste Combustor Report for Class IV Waste Combustors
- ☐ Equipment List
- ☐ Relative Accuracy Test Audit (RATA) Results Summary (CEMS) Date(s) Completed: _____

SEMIANNUAL REPORTS

- ☐ NESHAP Submittal
- ☐ Deviations Report (DRF-1 or DRF-2)

Year: _____

☐ 1st Half ☐ 2nd Half

- ☐ Calibration Error Audit Results Summary (COMS) Date(s) Completed: _____
- ☒ Cylinder Gas Audit (CGA) Summary (CEMS) Date(s) Completed: 8/16-17, 2018

QUARTERLY REPORTS

- ☐ Waste Combustor Quarterly Report (Class I, II, III, A, C, or D Waste Combustors)
- ☐ NESHAP Quarterly Submittal
- ☐ Direct Heating Units Combusting Solid Waste Report
- ☒ Excess Emissions Report (EER) (CEMS or COMS) (DRF-1 or DRF-2)

Year: 2018

☐ 1st Quarter ☐ 2nd Quarter ☒ 3rd Quarter ☐ 4th Quarter

- ☐ Indirect Heating Units Combusting Solid Waste Report
- ☐ Linearity Check Results Summary (CEMS) Date(s) Completed: _____

OTHER REPORTS

☐ Please Specify: _____ Date(s) Completed (if applicable) _____

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

DRF-1

Excess Emissions Reporting Form

Air Quality Permit Program

Doc Type: Excess Emission Report

Note: Please complete, and remit **only** the forms. Please see the instructions to ensure proper use and understanding of definitions.
Do not print and return the instructions.

General Information about Deviation and Compliance Reporting

If your permit requires you to submit deviation reports or an annual compliance certification, you should use the Deviation Reporting Forms (DRFs) and Annual Compliance Certification Report (CR-04), unless you get Minnesota Pollution Control Agency (MPCA) approval to use another format or your facility's permit specifies otherwise. There are two separate DRF forms: DRF-1 and DRF-2.

DRF-1 is used to report direct excess stack emissions (EE) recorded by Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems
DRF-2 is used to report deviations recorded by periodic monitoring systems, deviations of permitted operating conditions and surrogate parameters whether recorded
Some examples: flow rate, temperature, throughput, control equipment operating parameters, fuel-use records
CR-04: is used to report facility compliance status at the end of each year if required by your permit.

Address hard copy report submittals to: Air Compliance Tracking Coordinator, Minnesota Pollution Control Agency
520 Lafayette Road North, St. Paul, Minnesota 55155-4195

Or e-mail a signed and scanned PDF copy to: AQRoutineReport.PCA@state.mn.us
(see e-mail instructions in "Routine Air Report Instructions Letter" at:
http://www.pca.state.mn.us/nwqh472

1) General Facility Information

Facility name: United States Steel Corporation, Minnesota Ore Operations, Minntac
AQ file no.: 26A
County: St. Louis
AQ permit #: 13700005
Report covers quarter: Third
Year: 2018

2) CEMS/COMS Data Summary Table

				Duration of Monitor Downtime		Duration of Excess Emissions (EE)			
2a) Monitor ID Number	2b) Monitor ID Pollutant	2c) EU/SV ID Number	2d) Total Operating Time (TOT)	3i) Total Duration of Monitor Downtime (hr)	2e) **Downtime % Of TOT**	4l) Cumulative Duration of Exempt EE	2f) **Exempt EE % of TOT**	4m) Cumulative Total Duration of All EE	2g) **Total EE % of TOT**
MR 001	NOx	SV-103	2184	12	**0.5%**	0	**0%**	0	**0%**
MR 002	NOx	SV-118	2192	20	**0.9%**	0	**0%**	0	**0%**
MR 003	NOx	SV-127	2143	44	**2.1%**	0	**0%**	0	**0%**
MR 004	NOx	SV-144	2196	0	**0.0%**	0	**0%**	0	**0%**
MR 005	NOx	SV-151	2188	0	**0.0%**	0	**0%**	0	**0%**
MR 001	SO2	SV-103	2184	1	**0.0%**	0	**0%**	0	**0%**
MR 002	SO2	SV-118	2192	20	**0.9%**	0	**0%**	0	**0%**
MR 003	SO2	SV-127	2143	23	**1.1%**	0	**0%**	0	**0%**
MR 004	SO2	SV-144	2196	0	**0.0%**	0	**0%**	0	**0%**
MR 005	SO2	SV-151	2188	0	**0.0%**	0	**0%**	0	**0%**

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3a) Monitor ID Number	3b) Pollutant or parameter monitored	3c) Emission Unit Being Monitored	3d) Beginning Date and Time of Downtime	3e) End Date and Time of Downtime	3f) Duration of Downtime (minutes)	3g) Reason for Monitor Downtime (clarifying comments)	3h) Corrective ActionTaken (clarifying comments)
Line 3	NOx	SV103	07/30/2018 06:00:00	07/30/2018 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	08/30/2018 02:00:00	08/30/2018 11:59:00	600	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	NOx	SV103	08/30/2018 12:00:00	08/30/2018 12:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	07/30/2018 06:00:00	07/30/2018 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	09/03/2018 10:00:00	09/03/2018 10:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	09/04/2018 01:00:00	09/04/2018 02:59:00	120	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	09/04/2018 03:00:00	09/04/2018 03:59:00	60	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 4	NOx	SV118	09/04/2018 04:00:00	09/04/2018 04:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	09/04/2018 05:00:00	09/04/2018 05:59:00	60	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 4	NOx	SV118	09/04/2018 06:00:00	09/04/2018 06:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	09/04/2018 07:00:00	09/04/2018 07:59:00	60	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 4	NOx	SV118	09/04/2018 08:00:00	09/04/2018 08:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	09/04/2018 09:00:00	09/04/2018 09:59:00	60	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 4	NOx	SV118	09/04/2018 10:00:00	09/04/2018 10:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	09/04/2018 22:00:00	09/04/2018 23:59:00	120	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	09/05/2018 12:00:00	09/05/2018 12:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	09/05/2018 14:00:00	09/05/2018 18:59:00	300	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	09/05/2018 19:00:00	09/05/2018 19:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	09/03/2018 10:00:00	09/03/2018 10:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	09/04/2018 01:00:00	09/04/2018 02:59:00	120	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	09/04/2018 03:00:00	09/04/2018 03:59:00	60	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	09/04/2018 04:00:00	09/04/2018 04:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	09/04/2018 05:00:00	09/04/2018 05:59:00	60	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	09/04/2018 06:00:00	09/04/2018 06:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	09/04/2018 07:00:00	09/04/2018 07:59:00	60	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	09/04/2018 08:00:00	09/04/2018 08:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	09/04/2018 09:00:00	09/04/2018 09:59:00	60	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	09/04/2018 10:00:00	09/04/2018 10:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	09/04/2018 22:00:00	09/04/2018 23:59:00	120	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	09/05/2018 12:00:00	09/05/2018 12:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	09/05/2018 14:00:00	09/05/2018 18:59:00	300	Primary Analyzer Malfunction	Performed necessary maintenance

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3a) Monitor ID Number	3b) Pollutant or parameter monitored	3c) Emission Unit Being Monitored	3d) Beginning Date and Time of Downtime	3e) End Date and Time of Downtime	3f) Duration of Downtime (minutes)	3g) Reason for Monitor Downtime (clarifying comments)	3h) Corrective ActionTaken (clarifying comments)
Line 4	SO2	SV118	09/05/2018 19:00:00	09/05/2018 19:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	07/21/2018 06:00:00	07/21/2018 12:59:00	420	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 5	NOx	SV127	07/21/2018 13:00:00	07/21/2018 13:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	08/04/2018 07:00:00	08/04/2018 16:59:00	600	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 5	NOx	SV127	09/01/2018 06:00:00	09/01/2018 07:59:00	120	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 5	NOx	SV127	09/01/2018 08:00:00	09/01/2018 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	09/22/2018 11:00:00	09/23/2018 08:59:00	1,320	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 5	NOx	SV127	09/23/2018 09:00:00	09/23/2018 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	07/21/2018 06:00:00	07/21/2018 12:59:00	420	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 5	SO2	SV127	07/21/2018 13:00:00	07/21/2018 13:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	08/04/2018 07:00:00	08/04/2018 11:59:00	300	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 5	SO2	SV127	08/04/2018 13:00:00	08/04/2018 16:59:00	240	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 5	SO2	SV127	09/01/2018 06:00:00	09/01/2018 07:59:00	120	Excess Drift Ancillary Analyzer	Performed necessary maintenance
Line 5	SO2	SV127	09/01/2018 08:00:00	09/01/2018 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	09/26/2018 06:00:00	09/26/2018 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	09/26/2018 07:00:00	09/26/2018 07:59:00	60	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 5	SO2	SV127	09/26/2018 08:00:00	09/26/2018 08:59:00	60	Automatic Calibration	Performed necessary maintenance
				3i) Total duration of downtime:	**120**	**hours**	

4) Duration of Excess Emissions: Provide the following information regarding each individual excess emission identified by a monitor. Make a separate table for each monitor, as needed.

4a) Emission Unit ID Number	4b) Monitor ID Number	4c) Pollutant or Parameter Monitored	4d) Beginning Date and Time of EE	4e) End Date and Time of EE	4f) Limit and Averaging Period	4g) Highest Reading of EE with Units (example: 5 lb/hr, etc)	4h) Duration of Exempt EE (include these entries as part of 4i)	4i) Total Duration of All EE	4j) Cause of EE (clarifying comments)	4k) Corrective Action Taken (clarifying comments)
SV-103	MR 001	**Nox/SO2**	**N/A**	**N/A**	**N/A**	**N/A**	**0**	**0**	**N/A**	**N/A**
SV-118	MR 002	**Nox/SO2**	**N/A**	**N/A**	**N/A**	**N/A**	**0**	**0**	**N/A**	**N/A**
SV-127	MR 003	**Nox/SO2**	**N/A**	**N/A**	**N/A**	**N/A**	**0**	0	**N/A**	**N/A**
SV-144	MR 004	**Nox/SO2**	**N/A**	**N/A**	**N/A**	**N/A**	**0**	0	**N/A**	**N/A**
SV-151	MR 005	**Nox/SO2**	**N/A**	**N/A**	**N/A**	**N/A**	**0**	0	**N/A**	**N/A**
						4l) Cumulative Duration of Exempt Excess Emissions:		0	**4m) Cumulative Total**	0

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 3	SV103	NOx/SO2	7/6/18 0:14	7/6/18 2:13	119	YES	119	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	7/6/18 8:05	7/6/18 10:18	133	YES	133	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	7/10/18 8:42	7/10/18 9:59	76	YES	76	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	7/11/18 21:59	7/12/18 16:36	1117	YES	1117	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	7/17/18 11:08	7/17/18 12:05	56	YES	56	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	7/24/18 10:41	7/24/18 11:48	66	YES	66	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/15/18 7:43	8/15/18 8:44	61	YES	61	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/20/18 2:33	8/20/18 2:37	4	YES	4	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/22/18 10:24	8/22/18 11:23	58	YES	58	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/24/18 7:46	8/24/18 9:11	84	YES	84	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/28/18 23:20	8/28/18 23:59	39	YES	39	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/29/18 10:59	8/29/18 20:24	565	YES	565	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/29/18 22:11	8/30/18 0:37	145	YES	145	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	8/30/18 0:51	8/30/18 2:44	113	YES	113	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/7/18 9:25	9/7/18 9:31	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/11/18 7:02	9/11/18 8:22	80	YES	80	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/24/18 22:37	9/24/18 23:16	38	YES	38	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	9/29/18 20:32	9/29/18 20:59	27	YES	27	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/2/18 2:50	7/2/18 3:37	46	YES	46	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 4	SV118	NOx/SO2	7/3/18 17:12	7/3/18 18:06	54	YES	54	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/3/18 18:30	7/3/18 22:18	227	YES	227	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/7/18 22:36	7/7/18 23:26	50	YES	50	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	7/27/18 7:51	7/27/18 10:05	133	YES	133	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/1/18 10:06	8/1/18 14:47	281	YES	281	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	8/3/18 10:26	8/3/18 10:58	32	YES	32	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/10/18 12:38	9/10/18 15:02	143	YES	143	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/11/18 22:31	9/11/18 22:59	27	YES	27	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/12/18 14:59	9/13/18 4:04	785	YES	785	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/26/18 8:04	9/26/18 11:22	198	YES	198	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/2/18 13:22	7/2/18 13:36	14	YES	14	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/2/18 13:38	7/2/18 13:45	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/2/18 13:47	7/3/18 1:06	679	YES	679	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/3/18 7:27	7/3/18 11:17	229	YES	229	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/8/18 16:38	7/8/18 17:38	60	YES	60	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/9/18 22:14	7/9/18 22:16	2	YES	2	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/10/18 22:33	7/10/18 22:59	26	YES	26	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/12/18 14:59	7/13/18 14:44	1425	YES	1425	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/19/18 3:03	7/19/18 3:59	56	YES	56	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 5	SV127	NOx/SO2	7/19/18 13:59	7/20/18 1:47	708	YES	708	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/23/18 21:00	7/23/18 22:53	113	YES	113	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/23/18 23:34	7/23/18 23:54	20	YES	20	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/28/18 7:40	7/28/18 10:23	163	YES	163	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/4/18 13:00	8/4/18 13:21	20	YES	20	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/8/18 7:20	8/8/18 7:22	2	YES	2	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/8/18 7:38	8/8/18 8:59	80	YES	80	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/8/18 13:59	8/8/18 22:00	481	YES	481	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/16/18 19:53	8/16/18 20:11	18	YES	18	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/16/18 20:13	8/16/18 20:23	10	YES	10	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/16/18 20:33	8/16/18 20:41	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/19/18 22:21	8/19/18 22:35	14	YES	14	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/20/18 7:07	8/20/18 8:56	109	YES	109	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/21/18 9:29	8/21/18 11:44	154	YES	154	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/24/18 8:27	8/24/18 8:29	2	YES	2	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/3/18 15:41	9/3/18 16:01	20	YES	20	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/3/18 16:25	9/3/18 19:48	203	YES	203	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/4/18 22:32	9/4/18 22:59	26	YES	26	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/5/18 8:59	9/5/18 21:21	742	YES	742	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 5	SV127	NOx/SO2	9/6/18 1:14	9/6/18 2:59	105	YES	105	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/6/18 13:04	9/6/18 13:38	34	YES	34	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/12/18 11:51	9/12/18 12:13	22	YES	22	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/17/18 15:58	9/17/18 16:23	24	YES	24	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/19/18 14:59	9/19/18 15:23	24	YES	24	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/23/18 5:13	9/23/18 5:25	12	YES	12	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/27/18 20:49	9/27/18 20:59	10	YES	10	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/8/18 10:14	7/8/18 10:20	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/10/18 23:23	7/11/18 1:38	195	YES	195	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/17/18 15:47	7/17/18 16:09	22	YES	22	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/20/18 2:07	7/20/18 3:30	83	YES	83	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/20/18 9:59	7/20/18 13:31	212	YES	212	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/25/18 12:46	7/25/18 16:04	197	YES	197	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/3/18 21:20	8/3/18 21:34	14	YES	14	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/7/18 9:53	8/7/18 9:59	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/14/18 22:29	8/14/18 22:59	29	YES	29	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/15/18 10:59	8/16/18 2:07	908	YES	908	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/21/18 17:08	8/21/18 18:41	92	YES	92	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/21/18 18:45	8/21/18 18:51	6	YES	6	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 6	SV144	NOx/SO2	8/21/18 20:52	8/21/18 21:30	38	YES	38	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/25/18 0:52	8/25/18 1:42	50	YES	50	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/5/18 14:10	9/5/18 14:38	28	YES	28	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/6/18 21:03	9/6/18 21:07	4	YES	4	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/10/18 16:35	9/10/18 16:53	18	YES	18	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/13/18 8:03	9/13/18 8:47	44	YES	44	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/19/18 8:22	9/19/18 8:29	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/19/18 10:07	9/19/18 10:15	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/20/18 14:51	9/20/18 15:37	46	YES	46	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/24/18 10:06	9/24/18 11:59	113	YES	113	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/24/18 12:22	9/24/18 12:30	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/24/18 20:10	9/24/18 21:53	103	YES	103	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	9/25/18 11:29	9/25/18 12:18	48	YES	48	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/3/18 5:28	7/3/18 5:39	10	YES	10	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/3/18 8:30	7/3/18 14:02	332	YES	332	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/24/18 14:21	7/24/18 14:35	14	YES	14	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/25/18 13:14	7/25/18 15:07	112	YES	112	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/27/18 4:34	7/27/18 4:42	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/13/18 2:15	8/13/18 3:00	44	YES	44	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/14/18 23:32	8/14/18 23:59	26	YES	26	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 7	SV151	NOx/SO2	8/15/18 9:59	8/15/18 23:33	814	YES	814	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/16/18 12:45	8/16/18 12:57	12	YES	12	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/26/18 22:19	8/26/18 23:06	46	YES	46	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/30/18 11:01	8/30/18 11:17	16	YES	16	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/5/18 14:10	9/5/18 14:32	22	YES	22	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/6/18 1:26	9/6/18 2:29	62	YES	62	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/14/18 13:50	9/14/18 14:04	14	YES	14	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/15/18 21:34	9/15/18 22:14	40	YES	40	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/18/18 22:37	9/18/18 22:59	21	YES	21	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/19/18 8:59	9/19/18 23:18	859	YES	859	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/24/18 8:01	9/24/18 9:12	70	YES	70	Bypass necessary to protect plant equipment.	N/A
			5k) Total duration of allowable monitor bypass:				**256**	**hours**	

6) CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature of Responsible Official	Lawrence Sutherland Printed Name of Responsible Official
General Manager - Minnesota Ore Operations Title	October 25, 2018 Date

COMS audits

Subject item	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
N/A								

Cylinder gas audit's (CGA)

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
SV103	2184	MR001	NOx	8/16/2018	Low 2.5% Mid 2.0%	Pass	12/31/2018	
SV118	2192	MR002	NOx	8/16/2018	Low 0.6% Mid 0.4%	Pass	12/31/2018	
SV127	2143	MR003	NOx	8/16/2018	Low 3.3% Mid 2.2%	Pass	12/31/2018	
SV144	2196	MR004	NOx	8/17/2018	Low 0.6% Mid 1.1%	Pass	12/31/2018	
SV151	2188	MR005	NOx	8/17/2018	Low 4.4% Mid 2.9%	Pass	12/31/2018	
SV103	2184	MR001	SO2	8/16/2018	Low -3.4% Mid 0.3%	Pass	12/31/2018	
SV118	2192	MR002	SO2	8/16/2018	Low -1.8% Mid -0.2%	Pass	12/31/2018	
SV127	2143	MR003	SO2	8/16/2018	Low -2.7% Mid 1.4%	Pass	12/31/2018	
SV144	2196	MR004	SO2	8/17/2018	Low -2.5% Mid 0.1%	Pass	12/31/2018	
SV151	2188	MR005	SO2	8/17/2018	Low -1.9% Mid -0.2%	Pass	12/31/2018	

Linearity

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
N/A					Low Mid High			

Relative accuracy test audit (RATA)

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Relative accuracy	Pass/fail	Next test due by:	Comments
SV103		MR001	SO2	5/21/2018	2.5%	Pass	2nd Qtr 2019	
SV103		MR001	NOx	5/21/2018	9.5%	Pass	2nd Qtr 2019	
SV118		MR002	SO2	5/17/2018	2.9%	Pass	2nd Qtr 2019	
SV118		MR002	NOx	5/17/2018	1.7%	Pass	2nd Qtr 2019	
SV127		MR003	SO2	5/16/2018	13.2%	Pass	2nd Qtr 2019	
SV127		MR003	NOx	5/16/2018	13.3%	Pass	2nd Qtr 2019	
SV144		MR004	SO2	5/22/2018	6.0%	Pass	2nd Qtr 2019	
SV144		MR004	NOx	5/22/2018	13.2%	Pass	2nd Qtr 2019	
SV151		MR005	SO2	5/23/2018	8.2%	Pass	2nd Qtr 2019	
SV151		MR005	NOx	5/23/2018	10.3%	Pass	2nd Qtr 2019	

CGA Test Report - 2018Q3

Facility Name: Location:

L3 NOx Audit Test Results Analyzer Span: 500.0 ppm

Mfr & Model: ametek 920-NOX Serial Number: AE-920-10086-1

Low-Level Calibration Gas (20-30% of Span) (100.0 ppm - 150.0 ppm)	Concentration:	125.6
	Cylinder No.:	CC154435
	Expiration Date:	03/18/20
Mid-Level Calibration Gas (50-60% of Span) (250.0 ppm - 300.0 ppm)	Concentration:	278.8
	Cylinder No.:	CC258802
	Expiration Date:	11/11/21

Test Date: 08/16/18 Tester: NICK WILSON

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	08:49:00	128.8	08:52:00	284.0
Run 2	09:02:00	128.8	09:05:00	284.9
Run 3	09:13:00	128.9	09:16:00	284.0
Avg. Monitor Response		128.8		284.3
Calibration Error		2.5		2.0
Absolute Difference		3.2		5.5
Test Status		Pass		Pass

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response - Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

CGA Test Report - 2018Q3

Facility Name: Location:

L5 NOx Audit Test Results Analyzer Span: 500.0 ppm

Mfr & Model: AMETEK 920 NOX Serial Number: AX-920-9640-3

Low-Level Calibration Gas (20-30% of Span) (100.0 ppm - 150.0 ppm)	Concentration:	125.6
	Cylinder No.:	CC154435
	Expiration Date:	03/18/20
Mid-Level Calibration Gas (50-60% of Span) (250.0 ppm - 300.0 ppm)	Concentration:	278.8
	Cylinder No.:	CC258802
	Expiration Date:	11/11/21

Test Date: 08/16/18 Tester: NICK WILSON

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	11:03:00	129.0	11:06:00	285.0
Run 2	11:14:00	130.0	11:17:00	285.0
Run 3	11:25:00	130.0	11:28:00	285.0
Avg. Monitor Response		129.7		285.0
Calibration Error		3.3		2.2
Absolute Difference		4.1		6.2
Test Status		Pass		Pass

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response - Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

CGA Test Report - 2018Q3

Facility Name: Location:

NEW L7 NOx Audit Test Results Analyzer Span: 500.0 ppm

Mfr & Model: Ametek,920-NOX Serial Number: ZA-920-10336-2

Low-Level Calibration Gas (20-30% of Span) (100.0 ppm - 150.0 ppm)	Concentration:	126.4
	Cylinder No.:	CC314177
	Expiration Date:	03/18/20
Mid-Level Calibration Gas (50-60% of Span) (250.0 ppm - 300.0 ppm)	Concentration:	277.1
	Cylinder No.:	CC206391
	Expiration Date:	11/13/21

Test Date: 08/17/18 Tester: NICK WILSON

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	10:48:00	131.0	10:51:00	284.0
Run 2	11:00:00	132.0	11:03:00	285.0
Run 3	11:10:00	133.0	11:13:00	286.0
Avg. Monitor Response		132.0		285.0
Calibration Error		4.4		2.9
Absolute Difference		5.6		7.9
Test Status		Pass		Pass

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response - Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

CGA Test Report - 2018Q3

Facility Name: Location:

L4 SO2 Audit Test Results Analyzer Span: 100.00 ppm

Mfr & Model: AMETEK 920 SO2 Serial Number: AX-920-9640-2

Low-Level Calibration Gas (20-30% of Span) (20.00 ppm - 30.00 ppm)	Concentration:	25.16
	Cylinder No.:	CC154435
	Expiration Date:	03/18/20
Mid-Level Calibration Gas (50-60% of Span) (50.00 ppm - 60.00 ppm)	Concentration:	53.82
	Cylinder No.:	CC258802
	Expiration Date:	11/11/21

Test Date: 08/16/18 Tester: NICK WILSON

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	09:54:00	24.70	09:57:00	53.90
Run 2	10:04:00	24.80	10:07:00	53.90
Run 3	10:15:00	24.60	10:18:00	53.30
Avg. Monitor Response		24.70		53.70
Calibration Error		-1.8		-0.2
Absolute Difference		0.46		0.12
Test Status		Pass		Pass

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response - Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

CGA Test Report - 2018Q3

Facility Name: Location:

NEW L6 SO2 Audit Test Results Analyzer Span: 100.00 ppm

Mfr & Model: Ametek 920 SO2 Serial Number: ZA-920-10336-1

Low-Level Calibration Gas (20-30% of Span) (20.00 ppm - 30.00 ppm)	Concentration:	25.15
	Cylinder No.:	CC314177
	Expiration Date:	03/18/20
Mid-Level Calibration Gas (50-60% of Span) (50.00 ppm - 60.00 ppm)	Concentration:	54.13
	Cylinder No.:	CC206391
	Expiration Date:	11/13/21

Test Date: 08/17/18 Tester: NICK WILSON

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	09:53:00	24.10	09:56:00	53.60
Run 2	10:04:00	24.50	10:07:00	53.80
Run 3	10:15:00	25.00	10:18:00	55.10
Avg. Monitor Response		24.53		54.17
Calibration Error		-2.5		0.1
Absolute Difference		0.62		0.04
Test Status		Pass		Pass

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response - Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Summary Table by Monitor Downtime Type
U. S. Steel - Minntac
3rd Quarter 2018

NOx

Line	Duration (Hrs)	Description
Line 3	2	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	10	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction
	0	Sample Interface Malfunction
Line 4	2	Automatic Calibration
	0	Data Handling System Malfunction
	4	Excess Drift Ancillary Analyzer
	0	Excess Drift Primary Analyzer
	14	Primary Analyzer Malfunction
Line 5	3	Automatic Calibration
	0	Data Handling System Malfunction
	9	Excess Drift Ancillary Analyzer
	32	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction
Line 6	0	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	0	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction
Line 7	0	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	0	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction

SO2

Line	Duration (Hrs)	Description
Line 3	1	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	0	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction
Line 4	2	Automatic Calibration
	0	Data Handling System Malfunction
	4	Excess Drift Ancillary Analyzer
	0	Excess Drift Primary Analyzer
	14	Primary Analyzer Malfunction
	0	Preventative Maintenance
Line 5	4	Automatic Calibration
	0	Data Handling System Malfunction
	18	Excess Drift Ancillary Analyzer
	1	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction
	0	Preventative Maintenance
Line 6	0	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	0	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction
Line 7	0	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	0	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction